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## SCIENTIFIC NEWS.

**Louis Pasteur** was born at Dôle in the Jura region on Dec. 27, 1822. His father, a journeyman tanner, was poor, but he was a soldier who had been decorated for his valor on the field, and it is supposed that from him the famous man of science imbibed the patriotism which has always been one of his striking characteristics. His father superintended personally his early education, and the boy was sent to school at Arbois and began his classical studies there. It is said that in those days his devotion to study was not great. He was fond then of drawing, and preferred sketching his neighbors to spending time over his books, and this inclination seemed so strong that it was predicted he would ultimately become an artist. But the capacity for work which developed so strongly later asserted itself when he began to study at the college of Besançon. He took the degree of Bachelor of Letters there, was appointed a tutor, and in the intervals of his duties he studied to prepare himself for the École Normale. On his first examination he was admitted, having passed fourteenth on the list of candidates.

But this did not satisfy his ambition. He went to Paris, started on a new course of study in the Institution Barbet, and in 1845 tried the examination for a second time and won fourth place. He spent two years at the École in the study of chemistry, and was appointed a doctor in 1847. The following year he was appointed a professor of physics in the college at Dijon, and three months later was called to the University of Strassburg, where he was appointed professor of physics in the Faculty of Sciences. In 1854 he accomplished the organization of the newly formed Faculty of Sciences at Lille, and three years afterward he returned to Paris and assumed the "direction of the scientific studies" at the École Normale.

In 1865 he was made a professor of geology, physics, and chemistry, at the École des Beaux Arts, and in 1867, professor of chemistry at the Sorbonne, and he remained here until 1875. He was elected a member of the Academy of Sciences in 1862, and six years later, the faculty of medicine at Bonn gave him the title of Doctor, but he returned the diploma on account of the Franco-German war. In 1869 he was made a foreign member of the Royal Society of London, and in 1881 a member of the French Academy. The University of Oxford conferred on him the title of Doctor of Sciences, and he was made, unanimously, a perpetual Secretary of the Academy of Sciences to replace Vulpian, who died in 1887; but the state of his health and his personal scientific researches did not allow him to assume the duties of the position. He resigned after two years, and was made an honorary perpetual Secretary.

He has received almost every distinction that the French Government could give him. By a decree of Napoleon III, not promulgated, he was made a Senator, and in 1885 became a member of the Legion of Honor, in which he was steadily promoted to the highest rank.

M. Pasteur began his well-known series of investigations with the study of crystals while he was an assistant in the École Normale. He had no allowance for the expenses of his studies, and so he worked in a laboratory of his own with no funds except what was supplied by his own slender resources. His success in this particular branch of inquiry was regarded as remarkable for so young a man, and it was only through the force of circumstances that his labors were led into another direction.

He began the study of fermentation when he became connected with the Faculty of Sciences at Lille. It was a subject little understood at that time, and he speedily succeeded in bringing the scientific men of France to agree with his conclusions.

In 1849 an epidemic threatened to destroy the entire silk worm industry of France. Pasteur went to Alais where the plague was raging in its worst form to see what scientific measures could be taken to abate it. His investigations there proved that the disease was contagious, and the simple method suggested by Pasteur to separate the diseased eggs from the healthy ones has since been adopted to prevent a recurrence of the epidemic.

The discoveries which were to make him best known were yet to follow. In 1870 he commenced his studies in inoculation for diseases other than small-pox, with which his name is most associated. He achieved some remarkable results in the prevention of hydrophobia. Patients from all parts of Europe and America travelled to Paris to put themselves under his care, and his treatment has long been given at Pasteur institutes established in London and New York.

The cholera epidemic of 1892 led him to begin experiments in anti-cholera vaccination which proved successful in the case of animals.

Pasteur was one of the greatest men of science of the present century, but in one respect he disappointed his admirers. His refusal to accept recognition from Germany appears to have been a mistake. Science is cosmopolitan, and the attempt to localize its rewards is inconsistent with the spirit of the age.

**Marshall McDonald.**—To his many friends, to the public having an interest in the fisheries which he labored so successfully to enrich, and to the biologists whose scientific labors he appreciated and utilized, the death of Colonel Marshall McDonald, the late U. S. Fish Commissioner, is a severe loss.

Though the work in which he was directly engaged in his official capacity was of an eminently practical nature, he early recognized that science was the ally of practice, or rather that the best practice is science, and sought in the working biologist his most helpful colaborer whom he always urged to turn to the solution of the problems which he had ever before him.

With Col. McDonald pisciculture in this country was fast advancing to the secure foundations of scientific method now enjoyed to a considerable degree by its sister art, agriculture. His method was not to experiment at hap-hazard in the hope of making a lucky hit that might solve the problem at hand, but by the most painstaking investigation to study the fisheries in their widest relations, to build up a firm basis of facts scientifically acquired, and from these to draw conclusions which were as practical as they were far-reaching and accurate. This method was necessarily as slow as its results are enduring, and we have yet to see the full fruition of his labors. As a consequence the work has met with the usual criticism from impatient persons of circumscribed view, who would measure the value of the Fish Commission's labors only by the number of young fry annually raised, or supposed to have been raised, failing to recognize the practical fact, which alone will appeal in such cases, that many of the methods and apparatus now generally employed in local hatcheries have resulted from the careful scientific inquiry conducted under Col. McDonald's direction, and without which the highly gratifying and useful results attained would not now be possible.

One of the last important works of Col. McDonald's life was to plan a biological and physical survey of far greater thoroughness than any previously undertaken. He was convinced that the first step toward a comprehensive knowledge of the conditions of greatest productiveness of the fisheries is an understanding of the primary food supply—the "aquatic pasturage," he called it. This he hoped to gain by an accurate qualitative and quantitative analysis of the unicellular plankton and littoral life, which, in turn, involves the chemico-biological and physico-biological questions concerning the ultimate relation existing between land waste and sea utilization, and incidentally a study of the life-histories and interrelations of myriads of animals and plants.

While busily engaged in thus establishing the foundations for the pisciculture of the future, he was ever alert to secure methods of immediate practical utility, and searched the scientific literature for facts and suggestions, and it was thus often through him that important biological work, which had else been barren of practical results, became the basis of inventions of much economic importance. His mechanical ingenuity was remarkable, as his numerous inventions of apparatus will testify; nor until ill-health forced him to relax his efforts did he neglect the minutest details of construction.

It is, of course, impossible, in such a short sketch, to give any adequate idea of the scope and importance of Col. McDonald's work, completed or contemplated, but I am sure that all who have a scientific grasp of the questions involved in the labors of the U. S. Fish Commission toward the maintainance and betterment of our extensive fisheries will feel the immense loss which these interests have sustained in the death of Col. McDonald, especially following so shortly upon that of his lamented co-worker and frequent scientific adviser, Dr. John A. Ryder.

Col. McDonald was born in Romney, Hamshire Co., W. Va., Oct. 18, 1836. His early education was had at a local academy. He entered the Virginia Military Institute in 1855 and graduated in 1860, having interrupted his course to attend the University of Virginia during the college year of 1858–59. After graduation he was appointed assistant at the Institute to Prof. "Stonewall" Jackson, serving until the outbreak of the war, when he was appointed Inspector-General on that General's staff. He saw much active service, particularly while serving as an officer of the Engineer Corps. From 1866 to 1879 he was a professor at his alma mater, occupying the chair of chemistry, geology and mineralogy, and later that of geology and mining engineering. He served as Commissioner of Fisheries of Virginia from 1875 to 1888, when he was appointed U. S. Commissioner by President Cleveland, to succeed Dr. G. Brown Goode, who had temporarily filled the position left vacant by the death of Prof. Baird. Col. McDonald had previously held responsible positions in the U. S. Fish Commission under Prof. Baird, first, in 1879, as special agent on the fisheries statistics for the Tenth Census, then as superintendent of the shad hatcheries of the Potomac River, and subsequently as chief of the Division of Distribution of Food-fishes. He died Sept. 1, 1895.

—J. Percy Moore.

Luigi Ferri, Professor of Philosophy in the University of Rome, Italy, died in Rome, March 17, 1895. He was born in Bologna in 1826, was educated in France under Suisset and Simon, among his fellow pupils being E. Curo and Paul Janet. In 1862 he was made Professor of the History of Philosophy in the University of Florence and remained there until 1871, when he assumed the title of Professor of Theoretical Philosophy at Rome. His most important works were "Histoire de la Philosophie en Italie au XIX$^{e}$ siècle," 1869, and "Psychologie de l'Association de Hobbes à nos jouès," but he was best known as the editor of Italy's chief philosophical journal, the "Revista Italiana di Filosofia."

Charles Secrétan, a pupil of the philosopher Schelling and for many years Professor of Philosophy in the University of Lausanne, died January 22, 1895.

G. G. Glogan, Professor in the University of Kiel and author of many psychological and philosophical works, died early in this year.

Dr. D. Hack Tuke, the distinguished alienist, author of many works on psychological medicine, died in London March 5, 1895.

Georg von Gicycki, Associate Professor of Philosophy in the University of Berlin, died March 4, 1895, at the age of 46. Professor von Gicycki was the leader of the Utilitarian school in Germany, was a warm personal friend of Felix Adler and Stanton Coit and was much interested in the introduction of the "Ethical Culture" movement into Germany. His most important work appeared in 1888 under the title "Moralphilosophie."

**Appointments** of the past year. Professor O. Külps, who has been one of Wundt's assistants at Leipzig has gone to the University of Würzburg.

Dr. S. Mezes, a graduate of Harvard, has been appointed Professor of Philosophy in the University of Texas.

Dr. Margaret Washburn to be Professor of Philosophy and Psychology at Wells College.

W. B. Elkin to be Professor of Philosophy in Colgate University.

A. H. Lloyd to be Assistant Professor of Philosophy, and J. Bigham Ph. D. (Harvard) and Geo. Rebec Ph. B. (Mich.) Instructors in Philosophy in the University of Michigan.

J. S. Mackenzie M. A. to be Professor of Philosophy in University College, Cardiff, Wales.

W. L. Bryan Ph. D. (Clarke) to be Professor of Philosophy and Vice-President, University of Indiana. Dr. John A. Bergstrom to be Assistant Professor of Psychology and Pedagogy; E. H. Lindley to be Instructor in Philosophy.

Warner Fite Ph. D. (Penna.) to be Instructor in Philosophy, Williams College.

J. H. Hyslop Ph. D. (Johns Hopkins) to be Professor of Logic and Ethics, Columbia College.

Dr. J. Allen Gilbert of Yale to be Assistant Professor of Psychology in the University of Iowa.

Drs. E. B. Titchenor and J. E. Creighton have been made full Professors in the Sage School of Philosophy at Cornell.

Dr. Hillebrand has been made Assistant Professor of Experimental Psychology in the University of Vienna.

Dr. Hugo Münsterberg, Professor of Experimental Psychology in Harvard University for the past three years, has returned to Germany. He has not yet decided whether he will make his home permanently in the United States or in Germany.

**Report of the Committee Appointed by the Smithsonian Institution to Award the Hodgkins Fund Prizes.**—The Committee of Award for the Hodgkins prizes of the Smithsonian Institution has completed its examination of the two hundred and eighteen papers submitted in competition by contestants.

The Committee is composed of the following members:

Dr. S. P. Langley, Chairman, *ex-officio;* Dr. G. Brown Goode, appointed by the Secretary of the Smithsonian Institution; Assistant Surgeon-General John S. Billings, by the President of the National Academy of Sciences; Professor M. W. Harrington, by the President of the American Association for the Advancement of Science.

The Foreign Advisory Committee, as first constituted, was represented by Monsieur J. Jansen, Professor T. H. Huxley, and Professor von Helmholtz; and after the recent loss of the latter, Dr. W. von Bezold was added. After consultation with these eminent men, the Committee decided as follows:

First prize, of ten thousand dollars, for a treatise embodying some new and important discoveries in regard to the nature or properties of atmospheric air, to Lord Rayleigh, of London, and Professor Wm. Ramsay, of the University College, London, for the discovery of *Argon,* a new element of the atmosphere.

The second prize, of two thousand dollars, is not awarded, owing to the failure of any contestant to comply strictly with the terms of the offer.

The third prize, of one thousand dollars, to Dr. Henry de Varigny, of Paris, for the best popular treatise upon atmospheric air, its properties and relationships. Dr. de Varginy's essay is entitled "L'Air et la Vie."

August 9, 1895. (Signed) S. P. LANGLEY,
G. BROWN GOODE,
JOHN S. BILLINGS,
M. W. HARRINGTON.

"Post-Darwinian Questions," the second part of the late Prof. George J. Romanes' work, "Darwin, and After Darwin," is announced for publication by the Open Court Publishing Company, of Chicago, on October 15th next. With the exception of the concluding chapters, the present volume was ready for publication over two years ago, but the severe and protracted illness of Professor Romanes prevented its speedy completion. On his death, in 1894, the manuscript was placed in the hands of his friend, Prof. C. Lloyd Morgan, the distinguished biologist and Principal of University College, Bristol, England, who has successfully edited the work. This volume, with the first on "The Darwinian Theory," and the booklet on "Weismannism," constitutes, in the opinion of all competent critics, the most complete and authoritative *general* treatise on evolution in the English language. (Pages, 334. Price, $1.50.)

The same publishing house has also recently issued a second edition of Professor Romanes' "Thoughts on Religion," declared, by a prominent writer in the Chicago *Tribune,* to be "one of the most valuable books the century has produced." (Pages, 184. Price, $1.25.)

The Open Court Publishing Co., of Chicago, will issue, late in October, one of the most important books on the theory of evolution which America, perhaps, has yet produced. Its author is Prof. E. D. Cope, of Philadelphia, a well-known representative of the Neo-Lamarckian school of America, and represents the opposite extreme to Weismannism in evolution. In this book, which is entitled "The Primary Factors of Organic Evolution," Professor Cope will seek to show, principally by an examination of the paleontological records (in which he has done his main original work), and secondarily by a review of the general results of embryology and comparative anatomy, what the *efficient causes* are that are concerned in the progressive development and perfection of the organic forms of the world. One of the most noteworthy features of the book will be Professor Cope's attempt to show that every variation of organic beings has been produced by a direct efficient cause, and is not the result of chance—a consideration which Darwin overlooked. Professor Cope also discusses the part which consciousness has played in the evolution of living forms. His book will be a storehouse of evolutionary facts and discussions, especially from the paleontological point of view and undoubtedly the most complete handbook of the *purely mechanical* theory of evolution which exists. The original illustrations will be numerous and valuable. (Pages, *circa* 550. Price, $2.00.)

**Course in Embryology.**—Professor Charles S. Minot will give, at the Harvard Medical School, Boston, a course intended for persons who wish to make a special study of vertebrate or human embryology. This course is open to registered students of the graduate department of the Faculty of Arts and Sciences, and will be offered hereafter also as a special course to graduate students of the medical school.

This course will extend through the entire year, but in two parts of one term each. The resources of the Embryological Laboratory in apparatus and material render it possible to offer unusually favorable opportunities for both general study and special research. The course is arranged for those who, as morphologists, anatomists and practitioners, wish to give the principal part of their time for one or more school terms to the subject. It will cover the whole field of embryology, including the genital products, the theories of heredity and sex, the formation of the germ-layers, differentiation of the organs, the history of the placenta and the general morphology of vertebrates and of man. Most of the work will be done by the student in the laboratory, but there will also be formal lectures. Students taking this course will be expected to devote to it not less than eighteen hours a week.

Persons wishing to take this course should enter the university as graduate students under the Faculty of Arts and Sciences, but those who have a medical degree may enter as graduate students of the medical school. In the latter case, the fee for one term is $75.00, for two terms $125.00.

Applications should be addressed to Dr. Charles S. Minot, Harvard Medical School, Boston, Mass.

**Prizes of the Belgian Academy of Sciences, Letters and Fine Arts.**—The following announcement in regard to the prizes offered by the *Academie Royale des Sciences, des Lettres et des Beaux-*

*Arts de Belgique* has recently been made. In Natural Science the subjects for discussion are: (1). Original researches on the intervention of the phagocytes in the development of the invertebrates. (2). A description of the phosphates and carbonates of Belgian soil. The description must include the strata and locality of each mineral to which the writer refer. (3). Original researches concerning the peripheral nervous system of the Amphioxus, and, in particular, the constitution and genesis of the roots of the sensory nerves. (4). Original researches concerning the mechanism of the cicatrization of plants.

The prize for each of the four divisions will be a gold medal, valued at six hundred francs.

The memoirs must be written legibly, either in French or Flemish, and addressed post-paid to *M. le secretaire perpétual, au palais des Académies,* before the first of August, 1896.

The Academy insists upon exact citations; the authors must give the editions and pages of the works cited. Only manuscript copy will be accepted.

The competitors are requested not to use a pseudonym, but to adopt a device, which must be repeated on a card containing the name and address of the author and sent with the manuscript in a sealed envelope A prize cannot be awarded to any one who fails to comply with this formality.

All memoirs sent after the limit of time has expired, or those whose authorship is made known in any way whatever, are excluded from the competition.

The Academy reminds the competitors that when the memoirs are submitted for judgment, they must remain among its archives. However, the authors may have copies made at their own expense, by addressing a note to that effect to the permanent secretary.

The Jean Servais Stas prize is in the form of one thousand francs, to be awarded to the best work on the following subject:

To determine, by original research, the atomic weight of one or more elements for which the physical constant is now uncertain.

The memoirs must be legibly written in French or Flemish. They must be addressed, post-paid, to *M. le secrétaire perpétual, au palais des Académies,* before the first of August, 1896.

The competitors will, in other respects, conform with the usual conditions of the annual contest.